

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 10-260681

(43)Date of publication of application : 29.09.1998

(51)Int.Cl.

G10H 1/00
G10H 1/00

(21)Application number : 09-341642

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(22)Date of filing : 11.12.1997

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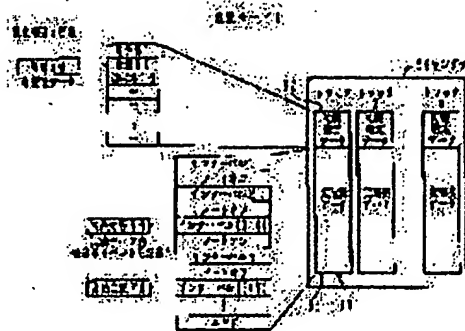
Priority number : 09 4423 Priority date : 14.01.1997 Priority country : JP

(54) METHOD AND DEVICE FOR ALTERING PLAYING DATA AND MEDIUM RECORDED WITH PROGRAM

(57)Abstract:

PROBLEM TO BE SOLVED: To automatically alter the whole playing data without a feeling of physical disorder by retrieving data of the same kind with indicated data to be altered from actual playing data and altering or erasing the retrieved data according to an indication.

SOLUTION: When a user indicates an alteration of sound volume in initial setting data, for example, from 50 to 80, a playing data altering device generates new initial setting data 52. The playing data altering device discriminates the kind of an even of the alteration that the user indicates. Then an event of the same kind with the even is erased from the actual playing data and actual playing data 53 are generated. For example, an even such as a sound volume alteration 60 and a sound volume alteration 70 is erased. Then all the events of sound volume alterations in the actual playing data 53 are erased and then the setting of sound volume 80 in the initial setting data 52 becomes effective to the whole in the playing data 51 in principle. The user becomes able to set the reference sound volume of the whole music to 80.



LEGAL STATUS

[Date of request for examination] 24.02.1999

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than th examiner's decision of rejection or

application converted registration]
[Date of final disposal for application]
[Patent number]
[Date of registration]
[Number of appeal against examiner's decision
of rejection]
[Date of requesting appeal against examiner's
decision of rejection]
[Date of extinction of right]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] Especially this invention relates to change processing of performance data in which the value of performance data can be changed into a desired value, about processing of performance data.

[0002]

[Description of the Prior Art] Drawing 7 is drawing showing the form of song data.

[0003] The song data 4 are automatic performance data for one music, and have each performance data 1 of a truck 1 - Truck n. When the song data 4 are recorded in the form of the standard MIDI file, the performance data 1 are expressed using the form of MIDI data. MIDI data have setting data for setting up others, a tone, an effect, etc. [OFF / note-on /]

[0004] The initial-setting data 2 are put on the portion of the head of the performance data 1 in many cases. The initial-setting data 2 are setting data set up beforehand, in order to perform the music, for example, they are a tone, volume, or an effect.

[0005] The performance data 1 are roughly divided and consist of the above-mentioned initial-setting data 2 and real performance data 3 which continue after that. The real performance data 3 are performance data other than initial-setting data 2, for example, are data after the note-on which appears in the beginning of music.

[0006] The real performance data 3 carry out an interval and an event at 1 set, and are constituted. The real performance data 3 contain setting data (volume change etc.) effective only in the specific section besides note-on / OFF.

[0007] In order to perform an automatic performance, the initial-setting data 2 are read first, initial setting, such as a tone, is performed, the real performance data 3 are read after that, and the automatic performance including pronunciation and silence is performed. The performance data 1 finish with end data.

[0008]

[Problem(s) to be Solved by the Invention] A user has the case where he wants to change the performance data 1, according to his liking. In this case, each event or interval of the performance data 1 can be changed using a sequencer or a personal computer.

[0009] However, when the change of the beginner is effective in the whole performance data 1 if the initial-setting data 2 are changed since there is little knowledge about performance data, he may have misunderstanding. For example, if the volume 50 in the initial-setting data 2 is changed into 80, when volume can be raised from the head of music over all to the last, it may have misunderstanding.

[0010] In fact, even if it changes the volume in the initial-setting data 2 into 80 from 50, the volume change 60 and the volume change 70 which exist in the real performance data 3 are not changed. Early volume is 50 and volume goes up the performance data before change to 60 and 70 after that. However, early volume is 80, and after that, volume will once fall in 60 and, next, will go up the performance data after change to 70. A change front and after change, sensibility of music changes and sense of incongruity is sensed.

[0011] The purpose of this invention is offering the record medium of the performance data

change equipment and the performance data change method of changing the whole performance data automatically by change of initial-setting data, so that there may be no sense of incongruity, or a program.

[0012]

[Means for Solving the Problem] A change directions means to change the performance data which consist of initial-setting data and real performance data according to one viewpoint of this invention and to be equipment and to direct change of the data in initial-setting data, The performance data change equipment which it has in a reference means to search the data to which the aforementioned change was directed, and data of the same kind out of real performance data, and a change means to perform change or elimination according to change by which directions were carried out [aforementioned] in the data by which reference was carried out [aforementioned] is offered.

[0013] Only by carrying out the change directions of the data in initial-setting data, it can change or eliminate according to change to which the aforementioned directions data in real performance data and data of the same kind were directed. That is, if change of initial-setting data is directed, the change directions can be confirmed over the whole performance data.

[0014]

[Embodiments of the Invention] The case where the performance data 1 shown in drawing 7 are changed is explained to an example. A user can only operate it to change the initial-setting data 2 in the performance data 1, and can change a request over the performance data 1 whole (the real performance data 2 are included).

[0015] A user may wish various change according to his liking or performance environment etc. For example, if the volume of initial-setting data is raised, only the quantity same about the whole performance data has the case where he wants to raise volume. Moreover, if the volume of initial-setting data is changed, there is a case where he wants to change the whole performance data into the same volume as the changed volume. In addition, there are various requests.

[0016] When changing the performance data 1, a user chooses one mode of the change modes 1-4 of drawing 1 - 4 first in order to decide what change want to make. Performance data change equipment can make various change about performance data according to the mode which the user chose. The change in each change modes 1-4 is shown in drawing 1 - drawing 4, respectively.

[0017] Drawing 1 is drawing for explaining operation in the change mode 1. The performance data 1 (drawing 7) are changed into the performance data 51 (drawing 1) in the change mode 1. The initial-setting data 2 and the real performance data 3 in the performance data 1 are changed into the initial-setting data 52 and the real performance data 53 in the performance data 51, respectively.

[0018] If a user directs to change the volume for example, in initial-setting data into 80 from 50, performance data change equipment will generate the new initial-setting data 52. And the real performance data 53 shown below are generated.

[0019] Specifically, performance data change equipment discriminates first the kind of event change was instructed to be by the user. The kind of event is volume. Then, the event of the same kind as the event concerned is eliminated from the inside of the real performance data 3, and the real performance data 53 are generated. For example, the event of the volume change 60 and volume change 70 grade is eliminated.

[0020] By eliminating all the events of the volume change in the real performance data 53, a setup of the volume 80 in the initial-setting data 52 becomes effective in all in the performance data 51 as a principle. A user can set the reference volume of the whole music as 80.

[0021] In addition, if the event of the volume change 60 in real performance data and the volume change 70 is eliminated, an interval 4 is added with the interval 3 in front of it, it will collect into one interval, an interval 7 will be added with the interval 6 in front of it, and it will collect into one interval. Methods, such as eliminating and leaving both of either between two intervals besides the aforementioned method, may be used.

[0022] Drawing 2 is drawing for explaining operation in the change mode 2. The performance data

1 (drawing 7) are changed into the performance data 61 (drawing 2) in the change mode 2. If a user directs to change the volume for example, in the initial-setting data 2 into 80 from 50, performance data change equipment will generate the new initial-setting data 62 based on the original initial-setting data 2.

[0023] According to change directions of the above-mentioned user, performance data change equipment changes the original real performance data 3, and generates the new real performance data 63. Specifically, performance data change equipment discriminates first the kind (for example, volume) of event change was instructed to be by the user, and changes all the events of the same kind as the event concerned into the same value into real performance data after that. For example, both the events of the volume change 60 and the volume change 70 are changed into the volume change 80.

[0024] Since the same volume as the volume 80 in the initial-setting data 62 is set up in the real performance data 63, volume can be set as an almost fixed size over the performance data 61 whole.

[0025] Drawing 3 is drawing for explaining operation in the change mode 3. The performance data 1 (drawing 7) are changed into the performance data 71 (drawing 3) in the change mode 3. If a user directs to change the volume for example, in the initial-setting data 2 into 80 from 50, performance data change equipment will generate the new initial-setting data 72 based on the original initial-setting data 2.

[0026] According to change directions of the above-mentioned user, performance data change equipment changes the original real performance data 3, and generates the new real performance data 73. Specifically, performance data change equipment discriminates first the kind (for example, volume) of event change was instructed to be by the user, and investigates the amount of change of the value change was further instructed to be. The amount of change is the volume $80 - \text{volume } 50 = +30$. Then, only the same amount of change changes all the values of the same event of a kind as the event concerned into real performance data. For example, the volume change 60 and the volume change 70 are changed into the volume change 90 ($=60+30$) and the volume change 100 ($=70+30$), respectively.

[0027] it is the same as the amount of change in the initial-setting data 72 — the data in ** and the real performance data 73 are changed On the whole, as for performance data, only the amount volume was instructed to be by the user is changed. That is, on the whole, the volume of performance data can be changed, without changing the balance of relative volume.

[0028] However, although this change mode is effective when there are few amounts of change, when the amount of change becomes large too much, volume may exceed maximum or may become smaller than 0. In this case, you may prepare a limiter in maximum and 0. Moreover, the amount of change is too large, and when the image of music changes, the change mode 4 explained below is effective.

[0029] Drawing 4 is drawing for explaining operation in the change mode 4. The performance data 1 (drawing 7) are changed into the performance data 81 (drawing 4) in the change mode 4. If a user directs to change the volume for example, in the initial-setting data 2 into 80 from 50, performance data change equipment will generate the new initial-setting data 82 based on the original initial-setting data 2.

[0030] According to change directions of the above-mentioned user, performance data change equipment changes the original real performance data 3, and generates the new real performance data 83. Specifically, performance data change equipment discriminates first the kind (for example, volume) of event change was instructed to be by the user, and investigates the change scale factor of the value change was further instructed to be. A change scale factor is volume $80 / \text{volume } 50 = 1.6$. Then, only the same change scale factor changes all the values of the same event of a kind as the event concerned into real performance data. For example, the volume change 60 and the volume change 70 are changed into the volume change 96 ($=60 \times 1.6$) and the volume change 112 ($=70 \times 1.6$), respectively.

[0031] it is the same as the change scale factor in the initial-setting data 82 — the data in ** and the real performance data 83 are changed On the whole, as for performance data, only the scale factor volume was instructed to be by the user is changed. On the whole, the volume of

performance data can be automatically changed on audibility.

[0032] Drawing 5 shows the composition of the hardware of the electrophone containing the performance data change equipment by the example of this invention.

[0033] The keyboard detector 28, the switch detector 30, a display circuit 31, the sound-source circuit 32, the effect circuit 33, RAM21, ROM22 and CPU23, external storage 25, and an interface 26 are connected to a bus 35.

[0034] A user can direct change of initial-setting data using a switch 29. The switch detector 30 detects the switch operation which used the switch 29, and generates a switch signal.

[0035] A user can also direct change of initial-setting data using a keyboard 27.

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CLAIMS

[Claim(s)]

[Claim 1] The performance data change equipment have a change directions means change the performance data which consist of initial-setting data and real performance data and are equipment and direct change of the data in initial-setting data, a reference means search the data to which the aforementioned change was directed, and data of the same kind out of real performance data, and a change means carry out change or elimination according to change by which directions were carried out [aforementioned] in the data by which reference was carried out [aforementioned].

[Claim 2] The procedure of being the record medium of the program which changes the performance data which consist of initial-setting data and real performance data, and directing change of the data in a initial-setting data, b) Medium which recorded the program for making a computer perform the data to which the aforementioned change was directed, the procedure of searching data of the same kind out of real performance data, and the procedure of performing change or elimination according to change by which directions were carried out [aforementioned] in the data by which the c aforementioned reference was carried out.

[Claim 3] The performance data change method of being the method of changing the performance data which consist of initial-setting data and real performance data, and containing the process which directs change of the data in a initial-setting data, the data to which the b aforementioned change was directed and the process search data of the same kind out of real performance data, and the process carry out change or elimination according to change by which directions were carried out [aforementioned] in the data by which the c aforementioned reference was carried out.

[Translation done.]